

# HOW TO CHOOSE THE RIGH PORT

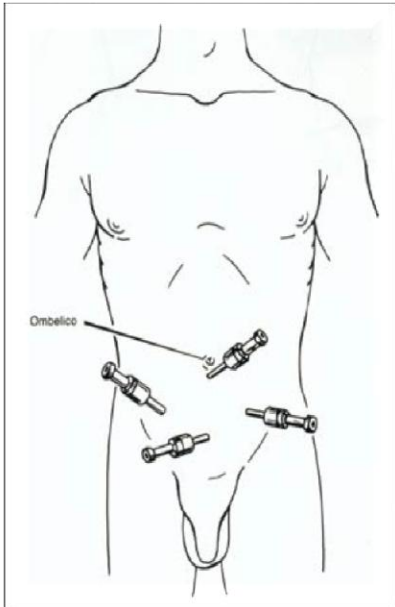
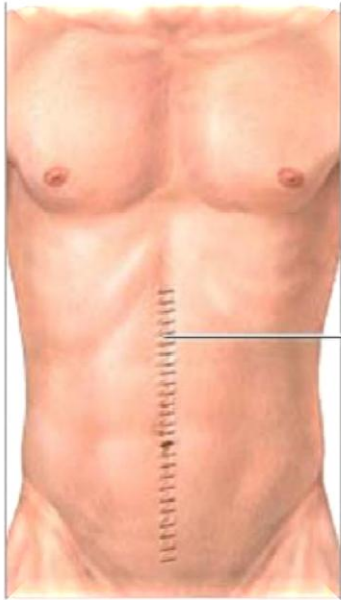
**M.M. Lirici, MD, FACS**

**How far should we go with  
Reduced Port Surgery?**

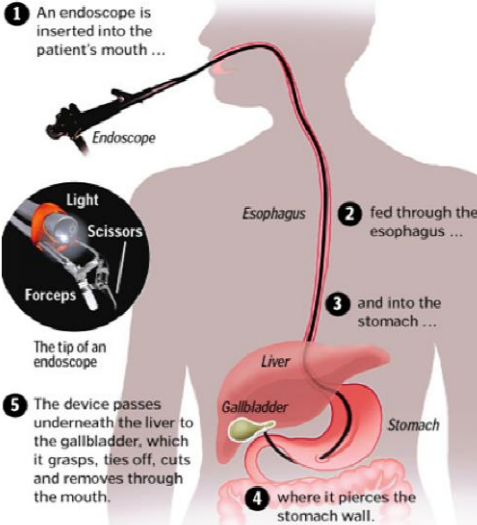


# ROADMAP OF MINIMAL INVASIVENESS IN SURGERY

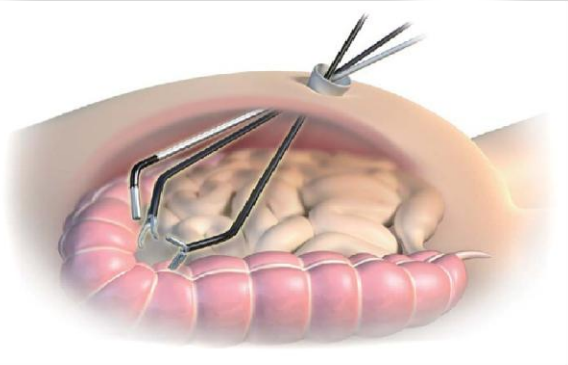
SCAR



### Gallbladder removal through the mouth



SCARLESS

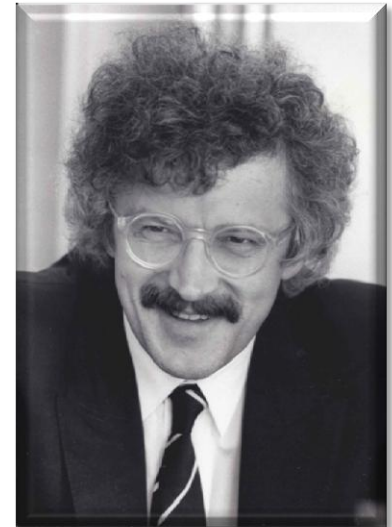


The Right Balance?

## SINGLE PORT ACCESS SURGERY/LESS

### FIRST EVER THERAPEUTIC PROCEDURES:

- **KURT SEMM 1972-1982 – LAPAROSCOPIC ANNEXAL SURGERY THROUGH A SINGLE-PUNCTURE OPERATING LAPAROSCOPE**
- **GERHARD BUESS 1983-1985 – DEVELOPMENT OF ENDOSCOPIC PROCEDURE THROUGH A MULTICHANNEL PORT (TEM)**
- **NAVARRA G. 1997 – ONE-WOUND LAPAROSCOPIC CHOLECYSTECTOMY. BR J SURG 84:695**



# INDICATIONS

<b>High Volume Procedures</b>	<b>Intermediate Volume Procedures</b>	<b>Low Volume Procedures</b>
cholecystectomy	adrenalectomy	Major bariatric procedures
appendectomy	splenectomy	myomectomy
inguinal hernia repair	hysterectomy	prostate resection
oophorectomy	pelvic organ prolapse	cystectomy
salpingectomy	donor nephrectomy	partial nephrectomy
endometriosis surgery	ureteral re-implant	retroperitoneal lymph
tubal ligation	ileal interposition	node dissection
pyeloplasty	radical nephrectomy	esophageal myotomy
incisional hernia repair	small bowel resection	distal pancreatectomy
renal cyst decortication	fundoplication	formal liver resections
ablative renal surgery	wedge liver resection	gastric resections
pelvic lymphadenectomy		
nephrectomy		
gastric banding		
colon resection		

**SINGLE PORT VERSUS REDUCED PORT**

# TECNOLOGIES

**WORKING ENVIRONMENT**  
**ERGONOMICS**  
**ACCESS**  
**INSTRUMENTS**  
**VISION**  
**PLATFORMS**  
**ROBOTICS**



## **WORKING ENVIRONMENT & ERGONOMICS**

### **ONE PORT SURGERY: THE LIMITS**

- **PHYSICAL CONSTRAINTS**
- **REDUCED DEGREES OF FREEDOM OF THE WORKING INSTRUMENTS**
- **LACK OF TRIANGULATION, POOR TRACTION**

**INSUFFICIENT EXPOSURE  
MENTAL, VISUAL, PHYSICAL FATIGUE**

# ACCESS DEVICES



**DISPOSABLE OR REUSABLE  
MULTIPOINT**



**ALTERNATIVE:  
SWISS CHEESE TECHNIQUE**

# ACCESS DEVICES CLASSIFICATION

## ACCESS TECHNOLOGY

**GEL**  
**MULTIPLE CHANNELS**

Gelpoint (Applied Medical)  
Xcone, Endocone (Karl Storz),  
Triport, Quadport (Olympus),  
OCTO-port (Dalim surgnet)  
SILS (Covidien), Airseal  
(Surgiquest)



**STRUCTURAL ACCESS**



## RETRACTING TECHNOLOGY

**SLEEVE**

Gelpoint (Applied Medical),  
Triport, Quadport (Olympus),  
OCTO-port (Dalim surgnet)  
SILS (Covidien)



**SOFT STRUCTURAL RETRACTION**  
**RIGID STRUCTURAL RETRACTION**

Xcone, Endocone (Karl Storz),  
Airseal (Surgiquest)





# SINGLE INCISION MULTIPLE FASCIA PUNCTURES

## TROCAR TECHNOLOGY

### LOW PROFILE TROCARS

Dexide ports (Covidien)  
AnchorPort (Surgiquest)  
Hunt trocars (Applied Medical)

### STANDARD CANNULAS

5 mm cannulas



## SINGLE PORT SITE

**SKIN INCISION 15-35 mm**

### **NAVEL**

Most procedures

Either transumbilical or over/below the umbilicus



### **RIGHT, LEFT FLANK**

Incisional Hernia repair,  
Colonic resections

### **MIDLINE MESOGASTRIUM-EPIGASTRIUM**

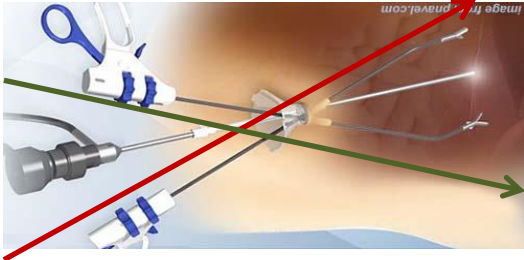
Bariatric surgery

# REDUCED SPACE Working through a single access

**STRAIGHT INSTRUMENTS**  
**PARALLEL DIRECTION**  
**FENCING EFFECT**

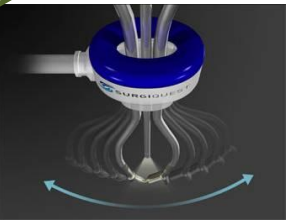
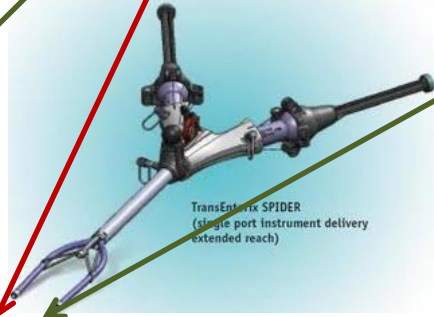
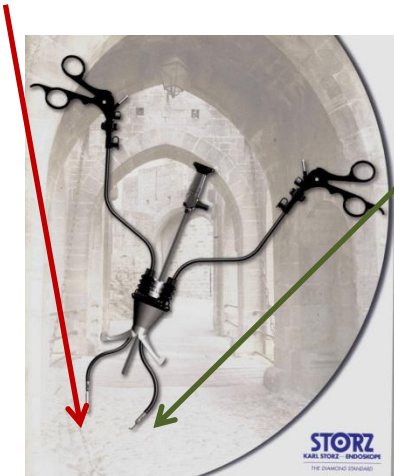


**STRAIGHT INSTRUMENTS**  
**CROSSING THE SHAFTS**  
**RIGHT HAND ON THE LEFT**  
**LEFT HAND ON THE RIGHT**



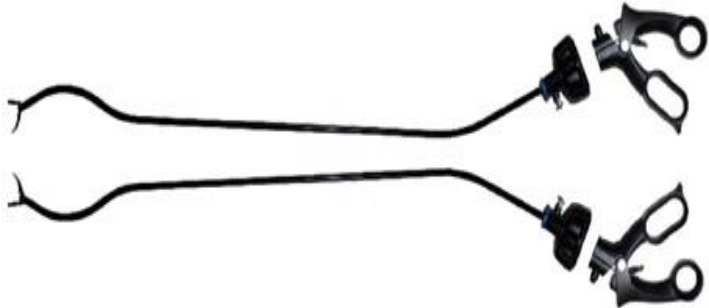
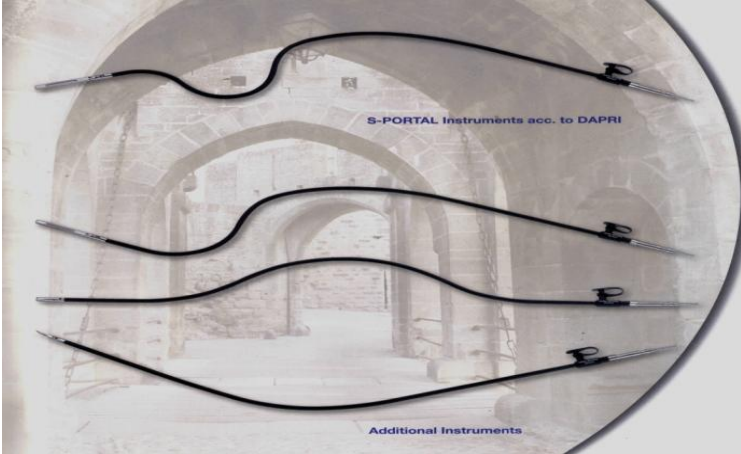
**PRESHAPED CURVED INSTRUMENTS**

**REPRODUCE OPEN SURGERY**  
**TRIANGULATION**



# POSSIBLE SOLUTIONS

## INSTRUMENTS



**STRAIGHT, CURVED,  
ARTICULATED**

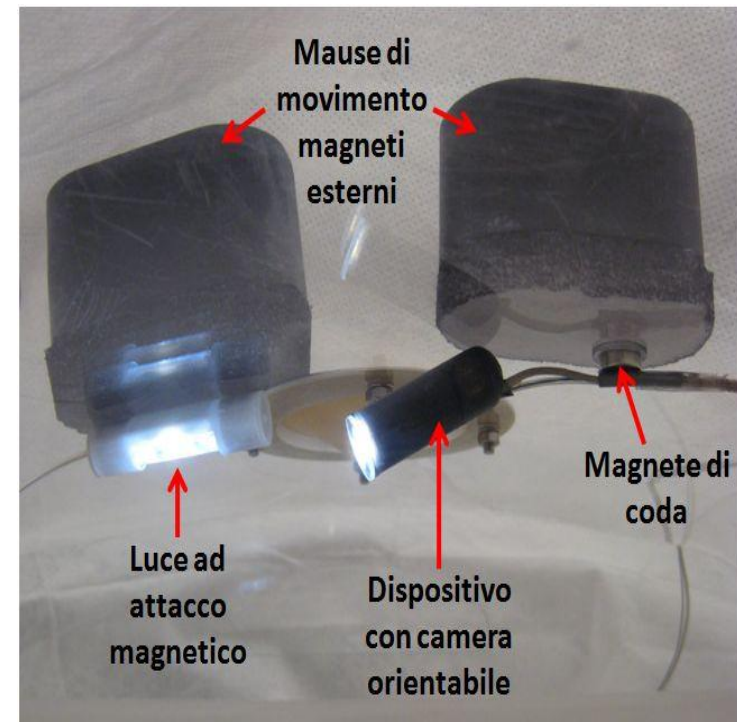
**SUPERELASTIC ALLOY  
INTERNAL GRAB**

# POSSIBLE SOLUTIONS

## VISION



**ARTICULATED, CHIP-ON-TIP 5  
mm SCOPES**



**EXTERNAL MAGNET  
CONTROLLED MICROCAMERAS**

# POSSIBLE SOLUTIONS

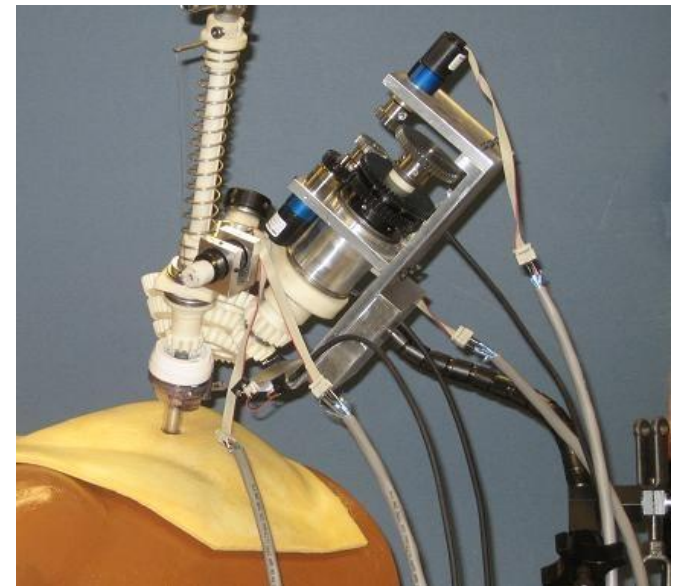
## PLATFORMS & ROBOTICS



**SPIDER  
TRANSENERIC**



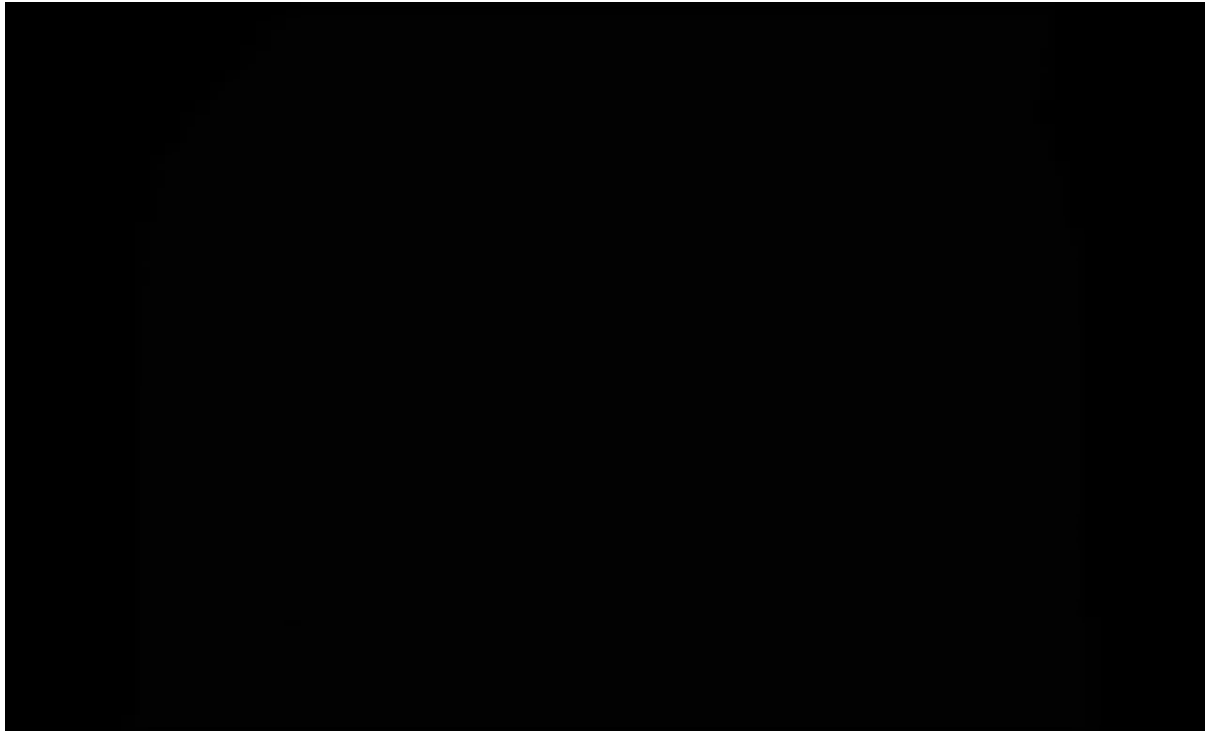
**da Vinci<sup>Si</sup> HC<sup>1</sup>**  
SURGICAL SYSTEM  
**MODULE FOR  
SINGLE SITE SURGERY**



**COURTESY  
D. OLEINIKOV  
UNIVERSITY OF NEBRASKA**

# POSSIBLE SOLUTIONS

**POP – PLUS ONE PUNCTURE**



## PERSONAL RECORD 2008-2011

<b>Cholecystectomy</b>	<b>53</b>
<b>Appendectomy</b>	<b>16</b>
<b>Sleeve gastrectomy</b>	<b>14/2</b>
<b>Annexectomy</b>	<b>4</b>
<b>Colonic procedures</b>	<b>4</b>
<b>Diagnostic laparoscopy</b>	<b>6</b>
<b>Wedge resection liver</b>	<b>1</b>
<b>Inguinal hernia repair</b>	<b>1</b>





## LESS CHOLECYSTECTOMY



## LESS APPENDECTOMY



## LESS SLEEVE GASTRECTOMY



## LESS SIGMOIDECTOMY



## QoL AND COSMESIS



**DOES THEY WORTH?**

## CONCLUSIONS

### BENEFITS

Reduced ports surgery:  
Cosmetics  
Postoperative pain?  
Quality of Life  
Prompter recover?  
Easy conversion

### DRAWBACKS

Ergonomics  
Fatigue  
Safety?  
OP time  
OP costs  
Postoperative pain?

### EVIDENCE

No evidence  
But the need for larger RCTs and methanalyses and further technology development